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DHHS NIOSH Publication No. XXXX-XXX

NIOSH-Approved CBRN SCBA User's Guide *Training Aid*

May 20, 2005

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

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DHHS (NIOSH) Publication No. 2005-XXX

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Foreword

This training aid is an educational tool created to enhance the safety and health of responders using self-contained breathing apparatus respirators (SCBA) approved with chemical, biological, radiological, and nuclear (CBRN) protection by the National Institute for Occupational Safety and Health (NIOSH). NIOSH-approved CBRN SCBA protect emergency responders against hazards associated with CBRN terrorism and significantly enhance the nation's overall defense strategy.

This training aid is a companion document to the comprehensive *NIOSH CBRN SCBA Guide** and summarizes key topics which are more fully explained in detail in that publication. This training aid should not be viewed as a complete CBRN SCBA training guide, but rather as a reference tool for individuals who have received training from the *NIOSH CBRN SCBA Guide*. Both publications should serve as complements to, not substitutes for, a required respiratory protection program.

The purpose of the *NIOSH CBRN SCBA Guide* is to educate individual respirator wearers, incident commanders, and team leaders, about the selection, operation, protections, and cautions and limitations of CBRN SCBA approved by NIOSH.

A list of NIOSH-approved CBRN SCBA is available on the NIOSH website at:
http://www.cdc.gov/niosh/npptl/topics/respirators/cbrnapproved/scba/.
For more information about NIOSH-approved respirators and respirator use guidelines call 1-800-35-NIOSH.

John Howard, M.D.
Director, National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention

* *NIOSH Recommended Guidelines for the Use of Chemical, Biological, Radiological, Nuclear (CBRN), Open Circuit, Pressure Demand, Self-Contained Breathing Apparatus (SCBA) Respirators Certified Under 42 CFR Part 84* DHHS Publication No. ———

Acknowledgements

Terrance K. Cloonan of NIOSH and Michael Bergman of EG&G Technical Services, Inc. are the document authors.

NIOSH expresses gratitude to Heinz Ahlers and Judi Coyne for their technical review comments and managerial guidance.

A special thanks to Candace Wolf and Donna Budniewski of Sci-Tek Environmental Services, Inc., and Amanda Ford of EG&G Technical Services, Inc. for editorial and graphics support.

Step 7 Decontamination

Have a plan for the decontamination (decon) and disposal of contaminated CBRN SCBA.

The six-hour continuous use life concept includes the decontamination and disposal of CBRN SCBA following use in a chemical warfare agent (CWA) environment. CWA are nerve agents and blister agents (See Step 4).

If known or suspected contamination is present on the CBRN SCBA, quickly conduct gross decontamination using all available systems such as ladder truck decon or other field expedient decon operation using high volume, low pressure clean water, to remove surface CBRN agent contamination.

Certain CBRN agents will not be neutralized while others will be hydrolyzed or diluted while being physically washed off equipment surfaces using these techniques. Contamination avoidance, mitigation, and decontamination practices should be planned out and trained for in advance.

Confirmed contaminated SCBA must be discarded in accordance with local regulatory HAZWOPER operations. If time permits, users should ensure that known or potentially contaminated CBRN SCBA are triple bagged in plastic, labeled with the type of contamination, the amount/type of decontamination solution used, and the technique used to conduct gross decontamination. The amount of exposure time for contaminated SCBA and the amount of CBRN contamination are also beneficial information relative to disposal. Local and state disposal procedures for specific CBRN agent contamination should be followed.

A decontamination method specific to the type of CBRN contamination present may contribute to the efficacy of decontamination operations. Seek decontamination guidance from the local incident commander or lead federal agency onsite.

Detection of CBRN agents on SCBA is situational dependent and subject to qualified quantitative methodology review by the lead federal agency.

Step 6 Facepiece Indications of Concern

You may have donned the SCBA facepiece incorrectly if:

A) The inside of the facepiece is fogged over

Corrections

- Use anti-fog solution
- Redon the facepiece
- Check that the air is fully turned on
- Seek training or re-training on use of HUD

B) The second stage regulator will not mate with the facepiece

Corrections

- Ensure facepiece matches SCBA
- Depress/Reactivate locking buttons
- Ensure no debris is in the threads

C) Heads up display (HUD) is not working

Corrections

- Inspect the HUD for damage
- Ensure the batteries are serviceable
- Reconnect the second stage regulator to the facepiece to ensure that it is correctly attached
- Ensure the electronic connections of the HUD are clean (if applicable)

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Figure 1. Law enforcement emergency response team (ERT), circa 2000. Courtesy of Scott Health and Safety.

Step 1

Verify that the CDC NIOSH CBRN Agent Approved adhesive label is on the SCBA back-frame! If the label is scratched or unreadable, confirmation of CBRN protection should be made with the manufacturer or NIOSH.

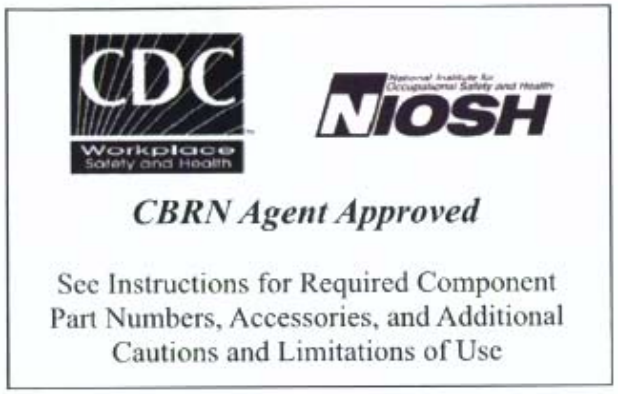

Figure 2. Example of a CDC NIOSH CBRN agent approved adhesive label.

This same style of label may say "Retrofit" if the SCBA was a previously deployed industrial SCBA which was later upgraded to CBRN.

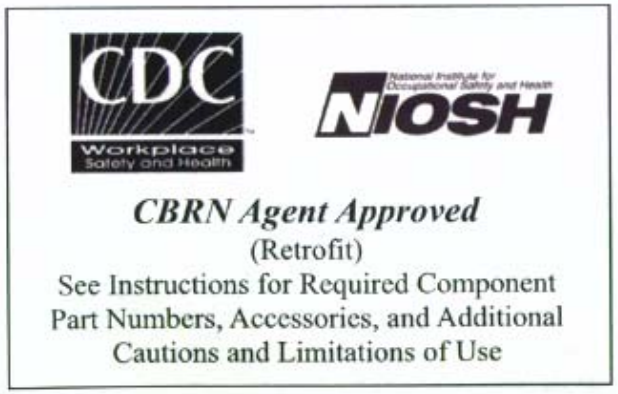

Figure 3. Example of a CDC NIOSH CBRN agent approved retrofit adhesive label.

Step 5

User's Instructions (UI)

The User's Instructions (UI) are included with every purchase of a new CBRN SCBA and typically include guidance on:

- Checks for unique parts labeled "CBRN" by the manufacturer
- Pre-use and in-use checks
- Donning and doffing
- Fit-testing and user seal checks
- Unit assembly
- Air cylinder inspection
- Cautions and warning statements unique to each respirator model
- Inspection checklists
- Verifies that the hydrostatic test date on the cylinder is current
- Regulator function (both first stage and second stage regulators)
- Function of all end-of-service-time-indicators (EOSTIs)
- Function of heads up display (HUD)
- Integrity of hoses for damage and tight hose connections
- Function of personal alert safety systems (PASS) if present

Step 4 CBRN Respirator Use Life (CRUL)

When a CBRN SCBA is contaminated with a chemical warfare agent (CWA) in vapor, aerosol, or liquid form, it has a limited use life of ***six continuous hours***, beginning at the time of an exposure. The time of CWA exposure is determined by using qualitative or quantitative detection methods in the field, or by laboratory analysis of SCBA removed from the site.

Remember:

- The time period is ***six continuous hours***, not a sum of smaller time periods of intermittent use
- At the six-hour mark, the entire SCBA must be decontaminated and disposed of properly
- The SCBA cannot be reused following the six-hour period
- CWA are nerve and blister agents
  - **Nerve agents** include: GA (Tabun), GB (Sarin), GD (Soman), GF (cyclohexyl Sarin), and V-series agents, such as VX
  - **Blister agents** include: H (sulfur mustard), HD (distilled sulfur mustard), nitrogen mustard (HN-1, HN-2 and HN-3) and Lewisite (L, L-1, L-2 and L-3)

Step 2 *Verify that your CBRN SCBA is assembled only with the parts listed in the NIOSH matrix-style approval label included with the user instructions.*

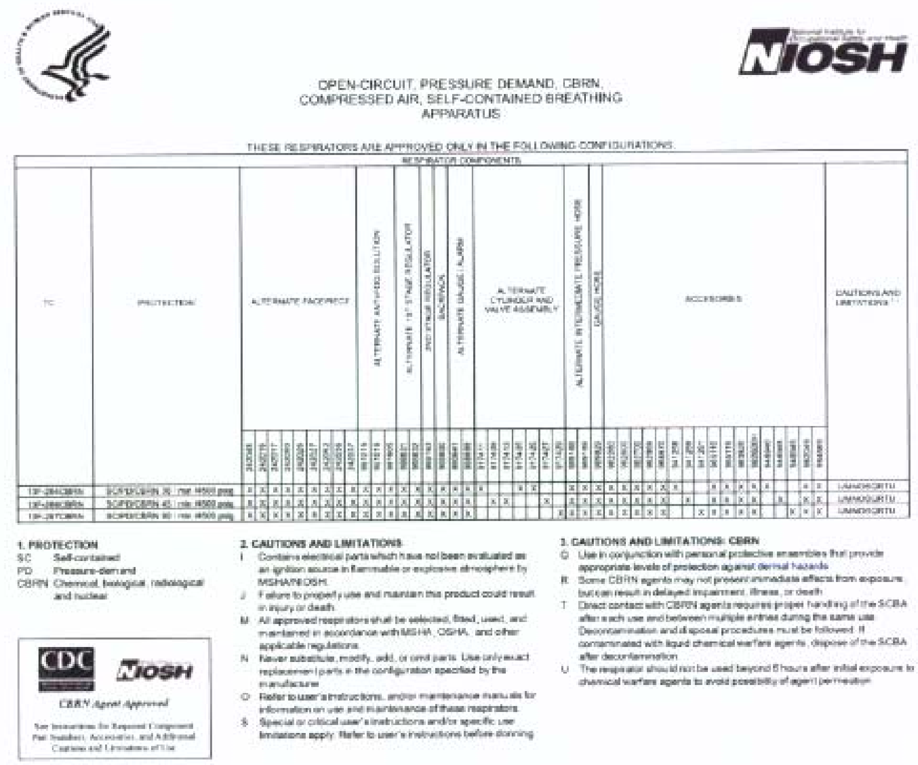

Figure 4. Example of a NIOSH CBRN SCBA matrix-style approval label.

Figure 5. Actual back frame assembly with affixed CDC NIOSH CBRN agent approved label, NIOSH abbreviated harness label and SEI compliance label. All three labels are required for NIOSH CBRN SCBA certification. Courtesy of Interspiro.

Step 3 NIOSH Cautions and Limitations You Need to Know

Industrial Use

The following NIOSH cautions and limitations appear in Section 2 of the CBRN SCBA matrix-style approval label and apply to industrial use:

I Contains electrical parts, which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.

J Failure to properly use and maintain this product could result in injury or death.

M All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.

N Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.

O Refer to user's instructions, and/or maintenance manuals for information on use and maintenance of these respirators.

S Special or critical user's instructions and/or specific limitations apply. Refer to user's instructions before donning.

Note:
The caution and limitation 'S' will only be on the NIOSH CBRN approval label if specified by the manufacturer in the user instructions. When 'S' appears on the NIOSH approval label, the corresponding Cautions and Limitations that apply under 'S' will be explained in a designated section of the manufacturer's user instructions (UI).

Caution and limitation 'I' will not be present on units which have met the evaluation requirements by MSHA/NIOSH for the criteria stated in 'I'.

CBRN Use

The following NIOSH cautions and limitations appear in Section 3 of the CBRN SCBA matrix-style approval label and, along with the industrial use limitations, apply specifically to use in CBRN environments.

Q Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards.

R Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.

T Direct contact with CBRN agents require proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

U The respirator should not be used beyond six hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.